Space Weather Forecast

Issued on Tuesday, 11 October 2022 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate-class X-ray flares.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Low to Moderate over the past 24 hours, with recorded X-ray activity confined to Common or low Moderate class. The largest flare of the period was from the largest and nominally most complex region on the disc in the northwest. This type of long duration flare has been typical of this sunspot group in recent days, with its apparent complexity not yet borne out in activity.
There are five numbered sunspot groups on the disc. The region in the northwest remains the largest group, though has slightly reduced its magnetic complexity. Other spots showed little change.

No Earth-directed CMEs were visible on available imagery through the period.

Solar Wind / Geomagnetic Activity: The solar wind declined from elevated to slightly elevated levels. The Interplanetary Magnetic Field was within its typical weak background range. The north-south component was small-scale but mainly anti-aligned with Earth's field. Geomagnetic activity was Quiet to Unsettled.
Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be Low to Moderate. This may reduce somewhat into the period as current sunspots look to simplify slightly, but with Moderate still possible particularly as one or more active regions are likely to rotate over the eastern limb onto the visible disk.
Solar Wind / Geomagnetic Activity: There are no major Earth-directed CMEs in the forecast, however the 07/0730UTC filament eruption CME may pass close to the Earth late on the 11th or early on the 12th October, giving some very slight peripheral influences.
Otherwise, ongoing fast winds are likely to continue to ease through day 1 (11th), likely approaching background by day 2 (12th). Some enhancement is possible at times due to possible glancing CME effects.
Largely Quiet to Unsettled but with a risk of Active intervals late on day 1 or early on day 2 (11th or 12th) due to possible glancing CME effects and a slight chance of an isolated Minor Storm interval for the same region.

Energetic Particles / Solar Radiation: Solar radiation storms should be at background, but with a daily slight chance of rising in response to any large x-ray flares, primarily from the largest sunspot groups.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	50	50	50
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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